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***ELECTRONIC INFORMATION ACCESS:
MONTANA'S GATEWAY TO THE FUTURE***

STATE DOCUMENTS COLLECTION

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STATE AGENCY LIBRARIANS ROUND-TABLE

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MEMORANDUM

TO: State Agency Librarians' Round Table

FROM: Richard Miller *RTM*

RE: Internet Paper Distribution to Legislative Candidates

DATE: August 12, 1994

Enclosed is the redone memo and a cover sheet to accompany the mailout of the Internet paper to Montana's legislature candidates (and those not up for election). My thanks to Beth Furbush and to Patricia Roberts for responding with changes they indicated they'd like to see. You'll notice that I put together a cover sheet with "teasers," as Patricia called them, to attempt to entice these folks into reading the cover memo and paper. Thanks also to Pam Harris for processing the mailing labels.

This is your last chance. Please let me know by telephone, FAX, etc. if you have any suggestions on this written items. We plan to mail the paper out this week. We'll be contacting some of you for help with the mailing costs, based on your previously indicated willingness to do so. Thanks for your help.

MEMO TO CANDIDATES AND INCUMBENTS OF THE MONTANA LEGISLATURE

- Are you sometimes confused by all the jargon you hear about "Internet," or the "Information Superhighway"?
- Do you wonder how important it is for Montanans to have access to electronic information?
- Do you worry that Montana may be left behind as more populous parts of the U.S. are "wired" for new technologies?
- How can the public's right for access to government information be assured in our increasingly electronic age?
- Where do libraries fit into this picture?

If these or similar questions have occurred to you, you may be interested in reading the enclosed paper entitled, Electronic Information Access: Montana's Gateway to the Future, produced by the State Agency Librarians' Round Table. An explanatory memo is attached to the paper.

We hope that you, as current or prospective members of the Montana State Legislature, will find this publication useful. [Please note that a three-page executive summary appears near the beginning of the publication.]

Thank you for taking the time to consider this publication. We look forward to answering any questions you may have. Best wishes to all of you as you prepare for the November elections.

MEMORANDUM

TO: Candidates for the Montana Legislature

FROM: State Agency Librarians' Round Table

RE: Enclosed paper entitled, Electronic Information Access: Montana's Gateway to the Future

DATE: August __, 1994

You may have recently heard references to an electronic information system called the "Information Superhighway." This international network of computers is sometimes referred to as "Internet" and is often linked with the federal government's "National Information Infrastructure" efforts. The enclosed paper describes the Internet and provides some ideas on how the system is likely to affect Montana.

Electronic Information Access: Montana's Gateway to the Future was produced by the State Agency Librarians' Round Table, comprising librarians in Montana's state agency libraries. As this paper was developed, the group felt that it would be a useful tool for you, as potential members of Montana's Legislature, to better understand the importance of how electronic access to information is changing the way we do business, the potentials we need to exploit, the dangers of creating "information have-nots" in the new technological age, and many more issues. This paper is being sent to you prior to the November election in hopes that access to information for all Montanans will be viewed by you as an important public policy issue in your campaign. We feel that this paper contains especially important information related to the need for Montana to keep up with this new technology, and perhaps "get ahead of the curve." It is only through such innovation that our state will be able to keep pace with changes occurring in the worlds of business, health care, agriculture, land management, education, libraries, etc.

Please feel free to contact any of the following people if you have questions about the information in this report. We hope it proves useful as you prepare for the November election.

Cheri Bergeron	444-2083
Claudia Furois	444-1395

Beth Furbush	444-3598
Pam Harris	444-4302
Vivian Hayes	444-4704
Nancy McLane	444-6763
Judy Meadows	444-3660
Richard Miller	444-3115
Patricia Roberts	444-4393
Tim Sweeney (now with Information Services Division)	444-5476

[Note: Debbie Waples indicated that
her name should not be included on this list.]

ELECTRONIC INFORMATION ACCESS: MONTANA'S GATEWAY TO THE FUTURE
Tim Sweeney, Editor

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STATE AGENCY LIBRARIANS ROUND-TABLE

Cheri Bergeron, Office of Public Instruction
Claudia Furois, Department of State Lands
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Debbie Waples, Department of Natural Resources and Conservation

EXECUTIVE SUMMARY

This paper is intended to be a reference for government leaders considering the question of public access to electronic information services. It was prepared by the State Agency Librarians Round-Table to further understanding of these services and explain the importance of public access and government participation. Though the paper focuses on public access to the Internet, the predominant and much-publicized network of information services, the arguments and analysis contained herein are generally applicable to any electronic information service or network.

Electronic information services and networks currently provide governments, businesses and millions of people worldwide with instant access to information. One of the more remarkable creations of the electronic information age is the Internet, a computer-based network of networks that allows worldwide access to a massive collection of information resources. These resources are distributed over a vast array of individual networks and are so extensive as to be difficult to comprehend. The Internet has dramatically changed the way information is shared, the manner in which educational and scientific research is conducted, and how people communicate.

Internet resources can be divided into two categories: communications and data. The communications category includes services such as electronic mail, electronic bulletin boards, mailing lists, and Internet Relay Chat. The data services allow users to search and retrieve data located on other computers.

While the selection of resources accessible via the Internet is impressive, it must be remembered that electronic access is not an end onto itself. Libraries, schools and government agencies will continue to play a crucial role in providing information resources. Not only will these entities serve as the public's point of access to the information super-highway, but they will provide the instruction and assistance necessary to navigate the available resources.

One of the inherent dangers of the electronic information age has been the creation of information haves and have-nots. In 1994 the danger of creating a privileged information society has been realized. Computers and network access are now readily available to the consumer and the wealth of electronic information services is growing exponentially. However, availability is dependent on the ability to pay for these tools. Those who cannot afford computers, network access or the price of electronic information services are in danger of becoming further disenfranchised from the information society. This danger is magnified by the fact that electronic information services are sometimes the only source for information.

Cost barriers to electronic information access become even more pronounced in rural areas. In addition to the issue of affordable access, rural citizens must contend with the cost of infrastructure development. The cost of providing network technology to low-density population areas can be prohibitive. To the extent infrastructure development is dependent on private industry, rural communities will seldom have the population necessary to attract private investment.

Beyond the issue of public access to information resources is the question of the government's responsibility to provide such resources. A fundamental component of our democratic government is public access to the data and information used by the government in reaching decisions and making policy. Such data and information undeniably belongs to the public and must be made available to any sector of the electorate wishing to review it. An obligation therefore exists for government leaders and agencies to find efficient means of disseminating information and data to the public, businesses, and other public agencies.

While Montanans currently enjoy an admirable level of electronic access to government information resources, the State must strive to increase and improve the level of this access. Expanding the base of available information not only satisfies an obligation vis-a-vis the public's right of access, but also is financially prudent since electronically-based mediums are now

recognized as one of the most efficient and cost-effective means of disseminating information.

Public access and government participation must be recognized as a priority deserving of Montana's financial resources. During the 1990's information and network access will mature into a primary factor of economic and educational success, and Montana stands to be labeled as a third-world state if it fails to ensure public access to the world's information resources and networks. Cost-effective public access is attainable. The government need only exploit the traditional depositories of information resources already in place. By providing the funding sufficient to provide access, equipment and training to libraries, educational institutions and selected government agencies, the State will ensure that its citizens have the minimum access needed to keep Montana educationally and economically competitive. State government also must continue to utilize electronic resources as a means to disseminate information. Making government information available in electronic form is not only cost-effective, but will increase the level of public access.

Montana's leadership must recognize that we live in an age where technology is dramatically altering the way the world communicates. Montana has a long history of stagnant economic development resulting, in large part, because of its rural character and the great distances between towns and cities. We can ill afford to allow Montanans to also become separated technologically and informationally. Public access and government participation on the information super-highway will ensure that Montana remains interactive and competitive in the information age.

I. PURPOSE

This paper is intended to be a reference for government leaders considering the question of public access to electronic information services. It was prepared by the State Agency Librarians Round-Table to further understanding of these services and explain the importance of public access and government participation. Parts II-IV provide background information on these services, Parts V-VI present public policy arguments supporting public access and government participation, and Part VII contains basic recommendations for promoting access and participation. A bibliography of reference materials is also provided.

While this paper provides an understanding of the relevant technologies, no proposals are made for the procurement of specific equipment or services. The Montana Department of Administration, Information Services Division, is involved in an ongoing technical review of available equipment and services and would be the most appropriate resource for information on this subject.

Finally, though the paper focuses on public access to the Internet, the predominant and much-publicized network of information services, the arguments and analysis contained herein are generally applicable to any electronic information service or network.

II. INTRODUCTION

Electronic information services and networks currently provide governments, businesses and millions of people worldwide with instant access to information.¹ For instance, a business-woman in Cincinnati, Ohio can electronically send mail to an associate in Brisbane, Australia; a student in Tokyo can explore the electronic card catalogue at the Library of Congress in Washington D.C.; a physicist in Zurich can access data on a NASA computer located in Sunnyvale, California; and so on. The electronic information age has arrived.

One of the more remarkable creations of the electronic information age is the Internet, a computer-based network of networks that allows worldwide access to a massive collection of information resources.² These resources are distributed over a vast array of individual networks and are so extensive as to be difficult to comprehend. The Internet has dramatically changed the way information is shared, the manner in which educational and

¹ For purposes of this paper, the term "information" includes both raw data and processed information.

² As will be discussed in Part III, *infra*, INTERNET is a successor network of an earlier network, ARPANET. Similarly, INTERNET has its own progeny in NSFNET, a National Science Foundation network linking the nation's super-computer centers. The successor of ARPANET-INTERNET-NSFNET is the National Research and Education Network (NREN), a product of "The High Performance Computing and Communications Act," passed by Congress in 1991. It is somewhat difficult to correctly identify the network that is the subject of this paper because ARPANET-INTERNET-NSFNET-NREN are all conceptual and technical extensions of one another. However, the term "INTERNET" is the commonly accepted reference for this collective network. Additionally, as used in this paper, "INTERNET" also refers to any successor/progeny networks of ARPANET-INTERNET-NSFNET-NREN.

scientific research is conducted, and how people communicate. In this regard, Internet may very well represent one of the most significant technological achievements in modern history.

The world is fast approaching a technological crossroads, a point at which governments, communities and individuals will either adapt to the new information age or fall behind. Access to the Internet is a threshold crossing. Timely and widely available access to Internet for the State of Montana and its citizens will almost certainly determine the State's future, economically, educationally and otherwise.

III. INTERNET: ORIGIN AND DEVELOPMENT

The Internet has its origin in the United States Department of Defense (DOD). In response to the launching of Sputnik by the former Soviet Union, DOD created the Advanced Research Projects Agency (ARPA). ARPA subsequently established ARPANET, an interactive computer-network that was intended to facilitate defense-related research and development. By linking various computers around the country ARPANET allowed scientists and researchers to share important information and data with one another. Soon after ARPANET went on-line, however, these scientists and researchers began using ARPANET's communication capabilities for purposes other than weapons research. For instance, a significant amount of electronic mail (e-mail) concerning science fiction was being transmitted across ARPANET.³

³ E-mail is discussed in greater detail in Part VI.

Scientists and researchers outside the defense establishment were soon clamoring for access to ARPANET because of its tremendous potential for sharing information resources. In 1983, this demand and the continuing use of the network for purposes unrelated to national defense resulted in the establishment of a progeny network, MILNET, a network dedicated to military operational use. ARPANET was thus left to the non-military researchers and scientists. At approximately the same time major advances were occurring in network technologies. These advances, linked to the development of the UNIX operating system,⁴ led to a proliferation of networks in college science departments across the world. As soon as these networks began connecting to ARPANET, the network of networks known as ARPA Internet, later known just as Internet, came into existence. Internet was soon an umbrella for networks such as CSNET, a science-oriented network established by the National Science Foundation (NSF), and BITNET, an IBM-sponsored network for scholarly and academic discussions not limited to the sciences.

Today, the Internet provides access to the information resources of universities, research facilities, libraries and governments worldwide. Successor networks such as NSF's NSFNET and the National Research and Education Network (NREN) are already building upon the Internet, exponentially increasing the information resources available from the Internet. Additionally,

⁴ Operating system software is responsible for the management and operation of the computer itself. The Unix operating system represented an advance in operating system technology because of its file management system and ability to share computer resources amongst multiple users.

the Clinton administration is currently supporting the establishment of the National Information Infrastructure (NII).⁵

IV. INTERNET RESOURCES

Internet resources can be divided into two categories: communications and data. The communications category includes services such as e-mail, electronic bulletin boards (BBS's), mailing lists, and Internet Relay Chat. E-mail allows users on a computer network to send and receive written messages to one another using their computer terminals. When a network is linked to the Internet, the networks users are then able to send e-mail to users on other networks connected to the Internet. An example of this type of arrangement is MCI Mail, a service which allows customers to use MCI's network to send and receive e-mail. This service initially was of limited value since e-mail could only be exchanged between MCI Mail subscribers. However, once MCI established a link between its network and the Internet, MCI Mail became a valuable communications service because its customers could communicate with users on different networks and vice versa.

BBS's are quite literally bulletin boards, a place where computer users can electronically post messages for other users of

⁵ The NII refers to an overall communications system of which the Internet would be a part. In *Technology for Economic Growth*, The National Information Infrastructure is described as "a web of communications networks, computers, databases, and consumer electronics that will put vast amounts of information at users' fingertips. The information infrastructure can be used by all Americans, not just by scientists and engineers."

a BBS to read.⁶ There are tens of thousands of BBS's in the United States alone, many dedicated to specific subjects. An example of a dedicated BBS would be the Montana Educational Telecommunications Network (METNET). METNET is operated by the State of Montana, Office of Public Instruction and serves as an electronic meeting place for Montana educators and students.⁷ There is also Big Sky Telegraph based in Dillon, Montana, which is nationally recognized as establishing one of the first "virtual communities."⁸

Mailing lists are permutations of e-mail and BBS's which allow e-mail messages to be distributed to a designated list of users. Any message addressed to a specified address on the Internet is

⁶ Most BBS software allows readers of a message to post a reply and will automatically link the original message with any replies and any replies to a reply. Through this function users can carry on a continuing discussion on a particular subject. If the BBS is linked to the Internet the discussion can involve literally thousands of people.

⁷ It should be noted that METNET has allocated a segment of its BBS to the Montana Telecommunications Advisory Council (MTAC). MTAC is an organization made up of individuals from the private and public sectors that, working in conjunction with the Governor's Office and U.S. Senator Conrad Burns' Offices, provides a forum for the development of policies and recommendations pertaining to telecommunications infrastructure development in Montana. By using METNET, MTAC members are able to exchange ideas and documents regardless of their geographical location.

⁸ "Virtual community" is a term used to describe computer users who share common interests using the computer-mediated form of communication. Big Sky Telegraph, a BBS, evolved over time into a broad-based community of rural users. METNET is an example of another virtual community, one made up of educators and students. For a further discussion of virtual communities, see *The Virtual Community: Homesteading on the Electronic Frontier* by Howard Rheingold.

automatically⁹ forwarded to every user on that particular mailing list. The potential for mass communication is obvious considering there are millions of users on the Internet.

Internet Relay Chat (IRC) is probably one of the simplest communication-type services. It allows multiple Internet users to communicate with one another in real-time using just their keyboards and monitors. IRC dedicates a "channel" on the Internet and anyone who wishes to participate in an IRC discussion has only to access the channel and start typing. Though the mechanics of IRC are complex, a channel can be compared with a radio frequency. Any number of radio operators can tune into a frequency and communicate with each other. Similarly, Internet users can locate an IRC channel and communicate with other users on the channel.¹⁰

The data category of services allow users to search and retrieve data located on other computers. There are a variety of such services, generally referred to as "interfaces" or "servers." Known by names such as Anonymous FTP, Telnet, Archie, Veronica, Gopher, Mosaic, World-Wide-Web, and Wais, these services allow users to efficiently search through the data resources of countless

⁹ Some mailing lists are moderated, which means distribution must be approved by a user who acts as a moderator. Moderation is also used on some BBS to control the types of messages which are posted. Moderation can sometimes be helpful in preventing the publication of messages unrelated to the subject matter of the mailing list or BBS. However, there is strong user sentiment against censorship of any kind, and the most popular Internet services are those that are not moderated.

¹⁰ IRC discussions that involve more than two users are sometimes referred to as forums or conferences. BBS's also provide forum or conference services, though these services require that the participants all be connected to the BBS.

computers.¹¹ In this regard, it is worth remembering that each network or computer that is connected to the Internet increases the amount of available data to Internet users. For instance, a university library connecting to Internet will not only gain access to the thousands of computerized card catalogues and databases maintained by other libraries, but will also provide those libraries access to its own catalogues and databases. Due to the enormity of the existing resources, and because new networks and computers are being linked to the Internet every day, it is impossible to catalogue all the data resources available on the Internet. However, a sampling of these data resources will illustrate the breadth of subjects available via the Internet's data services:

Agriculture

- Advanced Technology Information Network: Current market information, weather forecasts, events and news relating to farming and agriculture.
- Commodity Market Reports: contains the agricultural commodity market reports compiled by the Agricultural Market News Service of the United States Department of Agriculture (updated daily).

Business, Finance and Economics

- Business Statistics: contains industry statistics as well as business indicators, commodity prices, and construction and real estate data.
- Economic Indicators: presents raw data comprising economic indicators.
- Employment Statistics: civilian and government labor and unemployment statistics presented by state.

¹¹ Internet users may also access other computers using Telnet, a service that allows users to connect directly to computers located at different sites. This type of access is similar to that obtained by using a modem to access another computer line.

- Energy Statistics: statistics on energy consumption, requirements and reserves, including specific information on coal, crude oil, natural gas and other sources.
- Stock Market: closing quotes and commentaries.
- Stock Market Report: daily summary of stock market activity.

Education

- Chronicle of Higher Education: news articles and other information from CHE, as presented in its on-line service "Academe This Week."
- EDUPAGE: education-related news service.
- JANET Network: information on the United Kingdom's joint academic network.
- Newton: computer bulletin board system (BBS) for students and educators of science, math and computer science.

Geography

- CIA World Factbook: complete text containing detailed information about every country and territory in the world, including geographic, climate, economic and political data.
- Global Land Information System: land use and geological survey maps.

Government

- 1990 US Census Information: full text.
- Daily Summary of White House Press Releases.
- EPA: provides information on the activities of the EPA.
- Federal Government Information: provides government data.
- Federal Information Exchange: provides a full range of database services to the government, private sector and the education community.

Health & Medicine

- CancerNet: health and clinical information about cancer and cancer research.
- E.T.Net: National Library of medicine information service.
- Health Newsletters: newsletters on medicine, medical research, disease and therapy.
- National Institute of Health: provides announcements, research information, molecular biology database, and library resources.

Language

- Roget's Thesaurus: complete on-line reference.
- Webster's Dictionary: on-line dictionary and spelling reference.

Law

- Law Server: provides legal discussions and reference materials.
- Supreme Court Rulings: provided in electronic format within minutes of their release.

Libraries

- CARL System: computerized network of library system databases.
- Eureka: contains information on over 20 million books, serials, sound recordings, musical scores, archival collections, and other material.
- Library of Congress: electronic access to millions of publications maintained by the Library of Congress.

Literature

- Various Titles: includes complete texts of such works as Twain's "A Connecticut Yankee in King Arthur's Court," Carroll's "Alice in Wonderland," London's "The Call of the Wild," and Descartes' "Discourse on Reason."

Physics & Mathematics

- E-Math: electronic bulletin board of the American Mathematics Society.
- National Nuclear Data Center: on-line data service providing data on nuclear physics and statistical measurements.
- Physics Mailing List: reviews developments in theoretical and experimental physics.

Weather

- Hourly Auroral Activity Status Report: provides reports, watches and warnings.
- Solar and Geophysical Reports: updated every three hours, includes text graphs and tabular data.
- Weather Reports: updated weather reports for any location on the planet.

While the selection of resources accessible via the Internet is impressive, it must be remembered that electronic access is not an end unto itself. Libraries, schools and government agencies will continue to play a crucial role in providing information resources. Not only will these entities serve as the public's

point of access to the information super-highway, but they will provide the instruction and assistance necessary to navigate the available resources. In this respect, the information super-highway has not replaced our traditional depositories of information, it has merely expanded their collections.

V. INTERNET ACCESS: A PUBLIC POLICY OF EMPOWERMENT OR IMPOVERISHMENT?

Thomas Jefferson said in a December 20, 1787 letter to James Madison:

And say, finally, whether peace is best preserved by giving energy to the government, or information to the people. This last is most certain, and the most legitimate engine of government. Educate and inform the whole mass of the people.¹²

Jefferson's words reflect a belief that an educated electorate is the only guarantee of peace and liberty. The spirit of Jefferson's defense of republicanism survives today as the underlying principle of our democratic form of government.¹³

An expression of this principle can be witnessed in the established network of libraries, educational institutions, and various government agencies which provide information resources to the public. However, the access to information provided by these entities is slowly eroding as information storage shifts from

¹² The Papers of Thomas Jefferson, Vol. XII, p. 478.

¹³ There may be no better example of this fact than Montana, a state that prides itself on the populist ideal.

traditional formats such as books and file cabinets to electronic mediums.

One of the inherent dangers of the electronic information age has been the creation of information haves and have-nots.

For society, the impact will be good or bad, depending mainly on the question: Will "to be on-line" be a privilege or a right? If only a favored segment of the population gets a chance to enjoy the advantage of "intelligence amplification," the network may exaggerate the discontinuity in the spectrum of intellectual opportunity.

On the other hand, if the network idea should prove to do for education what a few have envisioned in hope, if not in concrete detailed plan, and if all minds should prove to be responsive, surely the boon to human kind would be beyond measure.

The above quote appeared in a 1968 article entitled "The Computer as a Communication Device."¹⁴ While the electronic-age network still has not attained the potential envisioned by the authors, in 1994 the danger of creating a privileged information society has been realized. Computers and network access are now readily available to the consumer and the wealth of electronic information services is growing exponentially. However, availability is dependent on the ability to pay for these tools.

Those who cannot afford computers, network access or the price of electronic information services are in danger of becoming further disenfranchised from the information society.¹⁵ This danger is

¹⁴ Licklider, J.C.R., Robert Taylor, and E. Herbert. *International Science and Technology* (April 1968).

¹⁵ It is generally recognized that one of the primary challenges for policymakers is ensuring universal access to the information super-highway. See Reinhardt, Andy. "Building the Data Highway." *Byte* 19 (March 1994): 46.

magnified by the fact that electronic information services are sometimes the only source for information.¹⁶

Cost barriers to electronic information access become even more pronounced in rural areas. In addition to the issue of affordable access, rural citizens must contend with the cost of infrastructure development. The cost of providing network technology to low-density population areas can be prohibitive. To the extent infrastructure development is dependent on private industry, rural communities will seldom have the population necessary to attract private investment.¹⁷

Beyond the issue of preserving an informed electorate is the question of constitutional protection. If the Internet becomes the standard medium through which people communicate, then denial of access would appear to also be a denial of the freedom of speech. Conversely, denial of access would also abridge the public's right to receive ideas. The United States Supreme Court has recognized that "[t]he right to receive ideas follows ineluctably from the sender's First Amendment right to send them...More importantly, the right to receive ideas is a necessary predicate to the

¹⁶ Electronic storage of information often replaces rather than supplements existing resources. For example, the U.S. Bureau of the Census' *Current Industrial Reports* is now only available in electronic form.

¹⁷ For a further discussion of issues affecting rural communities, see "Can Telecommunications Help Rural Areas Overcome Obstacles to Development." *Rural Development Perspectives* (Vol 8, no. 2, 1993).

recipient's meaningful exercise of his own rights such as speech, press, and political freedom."¹⁸

As computer-mediated forms of communication become more prevalent, the issue of electronic information and network access becomes more intertwined with the fundamental issues of self-government and constitutional freedoms. Additionally, on a sociological level, government leaders must ask themselves whether they will allow this society to develop into one where access to information and communication becomes a privilege rather than a right. Based on the principles that gave rise to this country and its constitution, public access to electronic information and networks would appear to be a necessity.

VI. INFORMATION DISTRIBUTION: GOVERNMENT PARTICIPATION

Beyond the issue of public access to information resources is the question of the government's responsibility to provide such resources. A fundamental component of our democratic government is public access to the data and information used by the government in reaching decisions and making policy. Such data and information undeniably belongs to the public and must be made available to any sector of the electorate wishing to review it. An obligation therefore exists for government leaders and agencies to find efficient means of disseminating information and data to the public, businesses, and other public agencies.

¹⁸ Board of Education, Island Trees Union Free School District No. 26 v. Pico, 457 U.S. 853, 866-67 (1982).

Several states have already begun the process of making their statutes and other legislative information available through the Internet. In October 1993, California passed legislation mandating that the California Codes and other legislative information be "made available to the public by means of access by way of the largest nonproprietary, nonprofit cooperative public computer network."¹⁹ Hawaii, Minnesota and Utah are also beginning to make legislative and statutory material available through the Internet and other states are at various stages of investigation of such access. Bills are currently under consideration in Colorado, Nebraska, New Jersey, Virginia, Washington and Wisconsin.

The State of Montana already has made advances in this area. Montanans are entitled by law to a copy of information compiled, created, or otherwise in the custody of public agencies that is in electronic format.²⁰ Further, state agencies involved in communicating information to the public are required to maintain certain information on a state-operated electronic bulletin board.²¹

¹⁹ 1993 Cal ALS 1235 (copy attached as Appendix A). In January 1994 access was implemented through the Internet.

²⁰ Section 2-6-110, MCA. For purposes of this statute, public agencies includes legislative, judicial and state military agencies.

²¹ Section 2-17-322, MCA. Information posted on the BBS includes, but is not limited to:

- (a) environmental assessments;
- (b) rulemaking notices;
- (c) board vacancy notices as required by 2-15-201, MCA;
- (d) agency reports mandated by statute;
- (e) parks reports required by 23-1-110, MCA;
- (f) requests for bids or proposals; and
- (g) public meeting notices and agenda.

While Montanans currently enjoy an admirable level of electronic access to government information resources, the State must strive to increase and improve the level of this access. Expanding the base of available information not only satisfies an obligation vis-a-vis the public's right of access, but also is financially prudent since electronically-based mediums are now recognized as one of the most efficient and cost-effective means of disseminating information.²²

VII. CONCLUSION & RECOMMENDATIONS

The State of Montana cannot provide every citizen with a computer and individual access to the Internet. In fact, some might argue that the State cannot afford to fund access at all. However, public access and government participation must be recognized as a priority deserving of Montana's financial resources. During the 1980's when Montana's economy was mired in the recession of 1982-83, Montana was frequently referred to as a third-world economy. During the 1990's information and network access will mature into a primary factor of economic and educational success, and Montana again stands to be labeled as a third-world state if it fails to ensure public access to the world's information resources and networks. If the risk of becoming a third-world state does not justify funding then it is difficult to imagine what will.

²² See generally Reinhardt, Andy. "Building the Data Highway." Byte 19 (March 1994): 46.

An instinctive reaction is to look to our libraries, schools and state agencies to reallocate resources and provide access. This is not a realistic option because these institutions are currently undergoing a funding crisis. State leaders therefore must take the initiative to make computer and network access a reality for its citizenry. Cost-effective public access is attainable. The government need only exploit the traditional depositories of information resources already in place. By providing the funding sufficient to provide access, equipment and training to libraries, educational institutions and selected government agencies, the State will ensure that its citizens have the minimum access needed to keep Montana educationally and economically competitive.

In regard to assuring access for rural areas, the answer is more complex. Steps must be taken by the government to ensure that infrastructure development is focused on providing access to all, not just those in urban areas. Regulatory guidance and oversight of infrastructure development may be required.²³ Additionally, full advantage must be taken of the available federal funds.

In addition to public access, Montana's state government must continue to use electronic resources to disseminate information.

²³ Guiding and overseeing infrastructure development will require a cooperative effort between the public and private sectors. Government agencies such as the Montana Public Service Commission and the Department of Administration, Information Services Division will need to work with private industry to promote an infrastructure that best serves the State of Montana. The Montana Telecommunications Advisory Council may provide a forum for such a cooperative effort.

Making government information available in electronic form is not only cost-effective, but will increase the level of public access.

In conclusion, Montana's leadership must recognize that we live in an age where technology is dramatically altering the way the world communicates. Montana has a long history of stagnant economic development resulting, in large part, because of its rural character and the great distances between towns and cities. We can ill afford to allow Montanans to also become separated technologically and informationally. In other words, Montana cannot live in an isolationist void if we are to interact and compete with the rest of the world. Public access and government participation on the information super-highway will ensure that Montana remains interactive and competitive in the information age.

Bibliography

- Amara, Roy, John Smith, Murray Turoff, and Jacques Valle.
"Computerized Conferencing, a New Medium." *Mosaic* (National Science Foundation) (January-February 1976).
- Congress of the United States, Office of Technology Assessment.
Critical Connections: Communication for the Future.
Washington, D.C.: United States Government Printing Office,
1990.
- Hahn, Harley, and Rick Stout. *The Internet Complete Reference*,
Berkeley, Calif.: Osborne McGraw-Hill, 1994.
- Krol, Ed. *The Whole Internet User's Guide & Catalog*. Sebastopol,
Calif.: O'Reilly & Assoc., 1992.
- Kumon, Shumpei, and Izumi Aizu. "Co-emulation: The Case for a
Global Hypernetwork Society." In *Global Networks: Computers
and International Communication*. Edited by Linda Harasim.
Cambridge, Mass.: MIT Press, 1993.
- Ladner, Sharyn J., and Hope N. Tillman, "How Special Librarians
Really Use The Internet." *Business & Finance Bulletin* 91 (Fall
1992): 13.
- LaQuey, Tracy. *The Internet Companion: A Beginner's Guide to
Global Networking*. Reading, Mass.: Addison-Wesley, 1992.
- Malamud, Carl. *Exploring the Internet: A Technical Travelogue*,
Englewood Cliffs, New Jersey: Prentice-Hall, Inc., (1993).
- Martin, J. "There's Gold in them thar Networks! or Searching for
Treasure in all the Wrong Places." Paper presented at the 1991
ACM SIGUCCS User Services Conference, available in
electronic form from various host computers on the Internet,
updated to December 1991.
- Odasz, Frank. "Big Sky Telegraph." *Whole Earth Review* 71 (Summer
1991): 32.
- Quarterman, John. "The Global Matrix of Minds." In *Global
Networks: Computers and International Communication*. Edited by
Linda Harasim. Cambridge, Mass.: MIT Press, 1993.
- Rapaport, Mathew J. *Computer-Mediated Communications*. New York:
Wiley, 1991.
- Reich, Robert. *The Work of Nations: Preparing Ourselves for
21st-Century Capitalism*. New York: Random House, 1991.

- Reinhardt, Andy. "Building the Data Highway." *Byte* 19 (March 1994): 46.
- Rheingold, Howard. *The Virtual Community: Homesteading on the Electronic Frontier*. Reading, Mass.: Addison-Wesley, 1993.
- Robins, Kevin, and Frank Webster. "Cybernetic Capitalism: Information, Technology, Everyday Life." In *The Political Economy of Information*. Edited by V. Mosco and J. Wasko. Madison, Wisc.: The University of Wisconsin Press, 1988.
- Sproull, Lee, and Sara Kiesler. *Connections: New Ways of Working in the Networked World*. Cambridge, Mass.: MIT Press, 1991.
- Tribe, Laurence H. "The Constitution in Cyberspace." *The Humanist* (September-October 1991).
- Uncapher, Willard. "Rural Grassroots Telecommunication: Big Sky Telegraph and Its Community." Master's thesis, Annenberg School for Communication, University of Pennsylvania, 1991.

APPENDIX "A"

PUBLICATION: DEERING'S CALIFORNIA CODES ANNOTATED
ADVANCE LEGISLATIVE SERVICE
(c) 1993 BANCROFT-WHITNEY COMPANY

1993 REGULAR SESSION, CHAPTER 1235 (Assembly Bill No. 1624)

1993 Cal ALS 1235; 1993 Cal AB 1624; Stats 1993 ch 1235

[Approved by Governor October 11, 1993.]

TEXT: The people of the State of California do enact as follows:

[*1] SECTION 1. The Legislature finds and declares that it is now possible and feasible in this electronic age to more widely distribute legislative information by way of electronic communication in order to better inform the public of the matters pending before the Legislature and its proceedings. The Legislature further finds that it is desirable to make information regarding these matters and proceedings available to the citizens of this state, irrespective of where they reside, in a timely manner and for the least possible cost.

[*2] SECTION 2. Section 10248 is added to the Government Code, to read: @ 10248.

(a) The Legislative Counsel shall, with the advice of the Assembly Committee on Rules and the Senate Committee on Rules, make all of the following information available to the public in electronic form: (1) The legislative calendar, the schedule of legislative committee hearings, a list of matters pending on the floors of both houses of the Legislature, and a list of the committees of the Legislature and their members.

(2) The text of each bill introduced in each current legislative session, including each amended, enrolled, and chaptered form of each bill.

(3) The bill history of each bill introduced and amended in each current legislative session.

(4) The bill status of each bill introduced and amended in each current legislative session.

(5) All bill analyses prepared by legislative committees in connection with each bill in each current legislative session.

(6) All vote information concerning each bill in each current legislative session.

(7) Any veto message concerning a bill in each current legislative session.

(8) The California Codes.

(9) The California Constitution.

(10) All statutes enacted on or after January 1, 1993.

(b) The information identified in subdivision (a) shall be made available to the public by means of access by way of the largest nonproprietary, nonprofit cooperative public computer network. The information shall be made available in one or more formats and by one means in order to provide the greatest feasible or more the general public in this state. Any person who accesses the information may access all or any part of the information. The information may also be made available by any other means of access that would facilitate public access to the information. The information that is maintained in the legislative information system that is operated and maintained by the Legislative Counsel shall be made available in the shortest feasible time after the information is available in the information system. The information that is not maintained in the information system shall be made available in the shortest feasible time after it is available to the Legislative Counsel.

(c) Any documentation that describes the electronic digital formats of the information identified in subdivision (a) and is available to the public shall be made available by means of access by way of the computer network specified in subdivision (b).

(d) Personal information concerning a person who accesses the information may be maintained only for the purpose of providing service to the person.

(e) No fee or other charge may be imposed by the Legislative Counsel as a condition of accessing the information that is accessible by way of the computer network specified in subdivision (b).

(f) The electronic public access provided by way of the computer network specified in subdivision (b) shall be in addition to other electronic or print distribution of the information.

(g) No action taken pursuant to this section shall be deemed to alter or relinquish any copyright or other proprietary interest or entitlement of the State of California relating to any of the information made available pursuant to this section.

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